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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,939	07/15/2003	Dirk Emiel Paula Mestach	ANR 2951 US	8878

7590

01/26/2005

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EXAMINER

ZALUKAEVA, TATYANA

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/620,939

Applicant(s)

MESTACH ET AL.

Examiner

Tatyana Zalukaeva

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code on page 4, lines 27-30 . Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 8 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. While the ratio as claimed is enable by the specification for iodine (page 7, lines 15-30) it is not enabled for sulfonyl iodide. Furthermore, since none of the preferred embodiments and specific examples provide any numerical data for sulfonyl iodide, nor they employ sulfonyl chloride at all, those skilled in the art would not be reasonably appraised on how to figure out the relationship between the claimed components without undue experimentation.

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3. Applicants are advised that at this time no restriction has been required between the product and process claims, however, if further amended other new claims are added, such restriction may be required on any stage of the prosecution.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim. In this case the polymerization process is already described in claim 1. Claim is further indefinite because it recites "polymerization process utilizing the polymer". Unless this is a specific process, such as, for instance, seed polymerization, the polymerization utilizes monomer, not polymer.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-7, 15-17 are rejected under 35 U.S.C. 103(a) as obvious over Moczygemba et al (U.S. 5,055,713) in view of Lissi et al "Methyl Methacrylate Polymerization in the

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Presence of Iodine " J Polym Sci-, Polymer Letters Edition, Vol. 14, No. 8 (1976), p-p. 499-502.

Moczygemba discloses polymerization process to make polymers, such as styrene-acrylonitrile polymer(acrylonitrile is a monomer containing a crosslinkable functional group) (see col.2, lines 60-65) in the presence of molecular weight regulators or modifiers, such as iodine (I_2) , and different organic iodine containing compounds (see abstract, col.2, lines 24-35) in the presence of free radical initiator (radical precursor) (see specifically Example 1 in col.4). The limitation of a molecular weight distribution is presumably met inherently, since it is axiomatic that one who performs the steps of a process must necessarily produce all of its advantages. Mere recitation of a newly discovered property or function that is inherently possessed by the things or steps in the prior art does not cause a claim drawn to those things to distinguish over the prior art, *Leinoff v. Louis Milona & Sons, Inc.* 220 USPQ 845 (CAFC 1984). The temperature of polymerization reaction is 50-150°C (col.4, line 45)

The disclosure of Moczygemba differs from the instant claims by disclosing 30% of acrylonitrile versus 50% of (meth)acrylate monomers as recited in the instant claim 1.

Lissi discloses polymerization of Methyl methacrylate initiated by AIBN in the presence of iodine. wherein iodine appears to be an efficient chain transfer agent (introduction, Fig.1, page 501, first paragraph). Since the copolymers of acrylonitrile/MMA are as widely used and [prepared as polymers of styrene acrylonitrile, and since the use of iodine chain transfer agents is adequately described in both processes, one skilled in the art would have found it obvious to substitute the styrene of Moczygemba by MMA of

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Lissi, using the same procedure with the same chain transfer agent with the reasonable expectation of success, motivated by the suggestion of Moczygemba, that esters of (meth)acrylic acids are suitable for the polymerization process (see col.3, lines 10-15). Moczygemba also describes block copolymers obtained by his process.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moczygemba et al (U.S. 5,055,713) in view of Lissi et al and further in view of admitted prior art.

Applicants cite the known mechanism of iodine mediated chain transfer in the presence of free radical initiator molecules on page 7 of their specification.

"When molecular iodine is used, the iodine radical released after one iodine is abstracted by a polymer radical does not reinitiate a methacrylate polymerization, but recombines with another polymer radical. The net effect of molecular iodine is the functionalization of two polymer chains with an iodine end group, in an identical way (J. Polym. Sci. Polym. Lett. Edx Vol. 20 14, 499-502 (1976)). In terms of the polymerization process, it implies that slightly more than 1 equivalent of initiating radicals should be generated, compared to the iodine atoms present in the systems as molecular iodine. Preferably, the amounts are selected so that the mole ratio iodine : radical precursor is between 0.05n and 0.5n, more preferably between 0.1n and 0.5n, and most preferably between 0.25n and 0.5n, wherein n stands for the number of radicals effectively generated per molecule of radical precursor.

In the case of the use of a sulfonyl iodide chain transfer agent, the preferred

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mole ratio sulfonyl iodide : radical precursor is $> 0.1n$, preferably $> 0.5n$, wherein n has the same meaning. Therefore, based on the similarity of the actual amount of iodine and initiator of Moczygemba and Lissi to those recited in the Applicants examples, it is obvious to those skilled in the art that the equation based on the theory of iodine/initiator interaction will be fulfilled in the process of Moczygemba.

8. Claims 1, 4-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Enright et al (U.S. 6,132,918).

Enright discloses process for making polymers in the presence of iodine and free radical initiator, and optionally crosslinking agent (abstract). The polymerization temperature is from 60-150°C (col.6, line 54), wherein the monomers are methacrylate monomers can be used in the amount of 1-99% (see col.9, lines 60-65), with other monomers, such as glycidyl methacrylate (epoxy compound) acrylonitrile, acrylamide and others containing crosslinkable groups. Isolation of the products from iodine and its compounds can be performed according to Enright by known methods, such as heating (see col.10, lines 30-45). Crosslinking agents may be present in the amount of 0.1-5 parts by weight and are listed in col.10, lines 19-32. Polymers obtained by the process of Enright are used as coatings (col.11, lines 36-40). The calculations performed based on the amounts of benzoyl peroxide and iodine presented in Table 3 in col.17, provide for the ratio of iodine and free radical precursor as claimed. With regard to sulfonyl iodide, see also rejection under 112, first paragraph. The disclosure of Enright does not contain an embodiment wherein all the requirements of the instant claims fulfilled at once.

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However, naming generically all the monomers in the amounts as instantly claimed, and performing all the steps of the process as instantly claimed would make it obvious to those skilled in the art to employ the named comonomers in the same embodiment, motivated by the generic teaching of Enright.

9. Claims 1, 2, and 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yutani et al (U.S. 5,439,980).

Yutani discloses a method of degenerative iodine chain transfer polymerization, where in polymer chain is produced by polymerizing, in the presence of a radical generating source and an iodide compound wherein the polymerization reaction is carried out in the presence of a monomer M2 which is different from the monomer M1 and has a larger addition reactivity with a carbon radical which is generated by cleavage of the carbon-iodine bond of the iodine compound than that of the monomer M1 (abstract). The monomers M1 and M2 are described in col.5, lines 44-66, and include MMA and crosslinkable compounds, such as acrylic acids, acrylonitrile and the like.

An intermediate polymer of Yutani is disclosed in Example 3, lines 40-45, wherein in the first step the MMA was polymerized in the presence of AIBN and iodine chain transfer agent, and the second step is further described in lines 46-55, wherein the iodine containing intermediate polymer of the previous step was polymerized with additional MMA in the presence of AIBN.

Iodine compounds are disclosed as those that can contain other atoms than carbon and iodine, and one of those as containing SO₃H group.

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The disclosure of Yutani differs from the instant claims by not expressly teaching sulfonyl iodide compounds, however, naming a genus of a compound having carbon, iodine and SO₃H makes it obvious to those skilled in the art to bring the sulfonyl iodide compound for the process of Yutani with the reasonable expectation of success.

Response to Arguments

10. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (571) 272-1115. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tatyana Zalukaeva
Primary Examiner
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